SCHOOL OF CIVIL ENGINEERING

GADALLAH & STAFFORD

JOINT HIGHWAY RESEARCH PROJECT

JHRP-74-5

TRAFFIC SPEED REPORT NO. 91

A. A. Gadallah
G. K. Stafford

NO.5
#593

MAY
1974

PURDUE UNIVERSITY
INDIANA STATE HIGHWAY COMMISSION

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TRAFFIC SPEED REPORT NO. 91

TO: J. F. McLaughlin, Director
Joint Highway Research Project

May 1, 1974

File: 8-3-3

FROM: H. L. Michael, Associate Director
Joint Highway Research Project

Project: C-36-10C

The attached Progress Report No. 91 on Traffic Speeds is the report of the 1973 study of free-flowing automobile and truck speeds on rural, tangent, level sections of Interstate, 4-lane and 2-lane highways in Indiana. The report has been prepared by Mr. A. A. Gadallah, a Graduate Instructor in Research on our staff, under the direction of Professor H. L. Michael. The data were collected by Mr. G. K. Stafford.

The results indicate the same average speed of all passenger cars and an increase of 1.2 mph for heavy trucks to that of the 1972 Study. A simple linear regression analysis over the last eleven years (1963-73) indicated that there has been an increasing trend in speed for most classifications of vehicles and highways of between 0.5 and 0.6 mph per year. Speed values for the past few years, however, indicate that the increasing trend is less today than it was five or six years ago.

An Addendum is presented at the end of the Report which summarizes a speed study made at three of the sites, one each on Interstate, other four-lane and two-lane facilities. This study was made in January-February 1974 during the voluntary 55 mph speed limit period. The results indicated that when compared with the enclosed 1973 speed study overall average speed for passenger cars was 3.8 miles less and for heavy trucks was 1.5 mph less. Average speeds of passenger cars was 61.4 mph and for heavy trucks was 57.3 mph.

An additional study was made in April of speeds at three stations under the present mandatory 55 mph speed limit.

Copies of this report are requested for release to the Indiana State Police, the Indiana Traffic Safety Council and the Indiana Department of Traffic Safety and Vehicle Inspection as a normal procedure for these reports. Copies will also be

sent to the Federal Highway Administration and several departments within the ISHC. The report is presented for the record and for release as noted.

Respectfully submitted,

Harold L. Michael

Harold L. Michael
Associate Director

HLM:ms

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Interim Report

TRAFFIC SPEED REPORT NO. 91

by

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and

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Joint Highway Research Project

File No.: 8-3-3

Project No.: C-36-10C

Engineering Experiment Station
Purdue University

In Cooperation With

Indiana State Highway Commission

Purdue University
West Lafayette, Indiana
May 1, 1974

ABSTRACT

This report is the annual continuing study of speeds of vehicles on rural Indiana Highways. Observations of spot speeds were taken on interstate, four-lane, and two-lane highways throughout the state during the months of June and August 1973.

Analysis of the speeds showed the overall average speed for passenger cars was 65.20 miles per hour. The overall average speed for heavy trucks was 58.8 miles per hour. This was the same overall average speed for passenger cars and 1.2 mph more for trucks than similar data given for 1972 at the same locations (except for station 10 which had been shifted to the original site of the previous studies).

Simple linear regression analysis on the data of the past eleven years showed an annual increase of 0.62 mph for the overall average speed of passenger cars and 0.78 mph for the overall average speed of heavy trucks. These trends are less than that of a ten year period ending five or six years ago and appears to result from a "leveling-off" of maximum speeds in recent years.

TRAFFIC SPEED REPORT NO. 91

This report is an analysis of spot speed observations made during June and August 1973. All observations were made of free-flowing vehicles on level, tangent sections of rural highways during daylight and under favorable conditions. The same locations on selected Federal and State highways as used in 1972 were used again except for Station 10, which has been moved to the original site of the previous studies. All other locations except station 9 have been the same for many years. Stations were classified as two-lane, four-lane, or interstate highways. A representative sample of spot speeds was obtained at each of the four stations in each classification. The site locations were as follows: (See Figure A)

		Interstate Highways
1.	I-69	3.3 miles south of Junction SR 18
2.	I-65	1.0 miles west of Junction SR 334
3.	I-74	1.0 miles east of Junction of Post Road
4.	I-65	7.5 miles north of Junction of SR 160
		Four Lane Highways
5.	U.S. 31	1.2 miles south of Junction of SR 38
6.	U.S. 52	1.0 mile east of Junction of SR 28
7.	U.S. 41	1.0 mile north of South Junction of SR 2
8.	U.S. 52	1.0 mile west of Klondike
		Two Lane Highways
9.	U.S. 35	1.5 miles east of Junction of I-69
10.	S.R. 73	2.0 miles south of Chalmers
11.	U.S. 31	3.0 miles south of Rochester
12.	S.R. 25	0.7 miles west of Americus

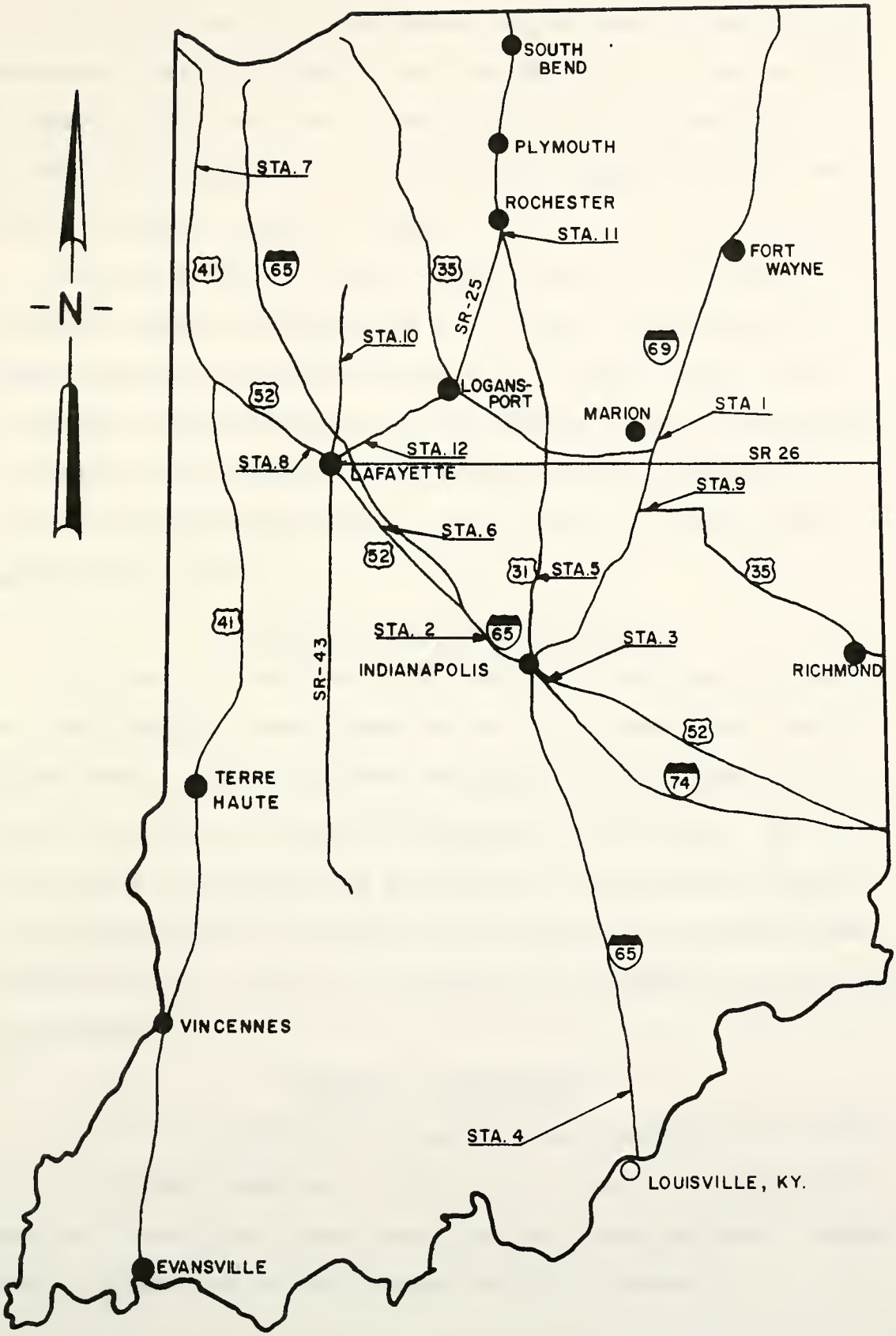


FIG. A - LOCATIONS OF SPEED-STUDY STATIONS

The vehicles were classified as Indiana or Non-Indiana Passenger Cars and Light (less than 5000 lbs. gross weight) or Heavy (equal to or more than 5000 lbs. gross weight) Trucks. The analysis was performed as classified and combined, passenger cars or trucks.

The maximum speed limits in Indiana are as follows: 70 mph on interstate highways and 65 mph on other rural highways unless otherwise posted. The state limits were applicable at all stations of this study except for Station 11 which had been posted at a 60 mph limit. This lower speed limit appeared to have little effect on the traffic speeds (See Table 11).

Equipment and Field Procedure

The observations for this study were obtained by use of an "Electromatic" Radar Speed Meter. The meter was placed approximately four feet from the edge of the pavement at angles less than 10° with the highway center line. No corrections of speeds were necessary at these small angles. At the beginning of the study the accuracy of the meter was checked and any constant discrepancy of readings was corrected accordingly.

Results of Analysis

The data collected were analyzed and summarized in Table 1 to 12 in the Appendix. Tables 13, 14 and 15 summarize the data for interstate, four lane, and two lane highways, respectively. Table 16 is the summary for all highways.

The average speed for each classification of vehicles on each type of highway for this study was as follows:

	Interstate	Four Lane	Two Lane
Passenger Cars:			
Indiana	69.25	63.98	62.14
Non-Indiana	70.14	63.70	61.38
85 Percentile (all)	74.78	70.85	68.72
Trucks			
Less than 5000 lbs.	64.05	60.78	58.66
5000 lbs or more	61.56	57.77	56.42

The percent of vehicles exceeding the speed limit for each classification of vehicles and each type of highway was as follows:

	Interstate	Four Lane	Two Lane
Passenger Cars:			
Indiana	41.87	44.43	32.15
Non-Indiana	52.87	47.28	26.50
Trucks			
Less than 5000 lbs.	14.29	31.44	18.86
5000 lbs or more	3.92	15.35	7.31

The percent of vehicles traveling more than 5 mph above the speed limit for each case was as follows:

	Interstate	Four Lane	Two Lane
Passenger Cars:			
Indiana	14.00	19.43	11.50
Non-Indiana	15.07	19.57	5.98
Trucks			
Less than 5000 lbs.	3.76	10.82	4.57
5000 lbs or more	0.00	3.73	1.15

The results of this study and similar studies conducted since 1963 are tabulated in Table A. A simple linear regression analysis on these results was conducted and a summary is given in Table B.

A linear relationship between speed and year was assumed with β the estimated slope of the straight line. Three hypotheses were tested ($\beta = 0.5$, $\beta = 0.60$ and $\beta = 0.75$) in order to place values on annual trends. It was found that, at the 95% confidence level, an increase of a 0.5 mph/year trend existed for all cases except for mean of all heavy trucks and interstate heavy trucks (15%).

An increase of a 0.6 mph/year trend existed for the mean of all heavy trucks, and the trend for the interstate heavy trucks (15%) was of an increase of a 0.75 mph/year.

TABLE A

SUMMARY OF SPOT SPEED OBSERVATION ON INDIANA HIGHWAYS

(Free-moving Vehicles on Level, Tangent Sections)

		Passenger Cars				Trucks		
		Ind. Mean	Non-Ind. Mean	All Mean	All 85%	Light Mean	Heavy Mean	All Mean
Two-Lane Highways								
June	'63	56.9	57.7	57.2	64.0	52.3	47.9	49.7
July	'64	59.1	60.1	59.5	66.6	53.9	51.7	52.4
Sept.	'65	58.2	57.9	58.1	64.6	54.3	50.6	51.7
Sept.	'66	60.1	59.5	59.9	65.5	55.4	50.8	52.0
Aug.	'67	61.0	61.9	61.3	68.0	53.8	51.9	52.7
June	'68	61.2	62.4	61.5	68.1	54.4	54.2	54.3
July	'69	64.7	64.6	64.7	71.9	60.5	55.9	57.9
July	'70	62.3	62.8	62.3	68.9	59.0	54.8	56.7
July	'71	61.4	60.9	61.3	68.0	58.0	54.0	55.6
June	'72	62.0	62.4	62.0	68.7	53.3	55.6	56.7
Aug.	'73	62.1	61.4	62.1	68.7	58.7	56.4	57.3
Four-Lane Highways								
June	'63	60.4	60.6	60.5	66.3	55.0	48.6	51.3
July	'64	61.3	63.0	62.0	69.4	55.1	54.5	54.7
Sept.	'65	60.1	62.2	61.0	67.2	55.5	53.1	53.7
Sept.	'66	63.1	64.3	63.5	69.0	58.7	52.8	54.2
Aug.	'67	64.3	65.7	65.0	70.3	57.0	54.0	54.9
June	'68	64.2	66.2	64.9	70.4	58.4	55.4	56.2
July	'69	67.7	68.3	67.9	74.6	64.0	58.0	59.6
July	'70	64.6	64.3	64.5	70.6	59.7	55.0	54.2
July	'71	64.3	65.4	64.7	70.7	59.8	56.4	57.4
June	'72	64.3	64.3	64.3	70.9	59.4	55.2	57.1
Aug.	'73	64.0	63.7	64.0	70.9	60.8	57.8	59.1
Interstate Highways								
June	'63	59.7	61.2	60.3	66.3	55.2	51.5	52.7
July	'64	61.9	64.0	62.7	70.5	56.8	54.6	55.2
Sept.	'65	61.2	62.1	61.5	67.7	54.9	53.6	53.9
Sept.	'66	62.1	63.3	62.5	68.5	56.1	54.9	55.3
Aug.	'67	66.4	68.3	67.1	73.6	60.0	56.9	57.5
June	'68	66.2	67.9	66.8	72.4	60.5	57.9	58.5
July	'69	70.2	71.2	70.6	76.6	65.3	59.9	61.4
July	'70	69.1	69.2	69.2	74.6	63.8	59.6	60.5
July	'71	68.3	68.7	68.5	73.7	64.8	59.4	60.8
June	'72	69.1	69.6	69.3	74.4	63.7	60.9	61.8
Aug.	'73	69.3	70.1	69.6	74.8	64.1	61.6	62.3
All Highways								
June	'63	59.0	59.9	59.3	65.2	54.1	49.5	51.2
July	'64	60.8	62.4	61.5	69.2	55.2	53.7	54.1
Sept.	'65	59.9	60.9	60.3	66.7	54.9	52.6	53.1
Sept.	'66	61.8	62.4	62.0	68.0	56.7	52.7	53.8
Aug.	'67	63.9	65.8	64.5	71.4	56.3	54.6	55.1
June	'68	63.8	66.6	64.5	70.8	57.2	56.2	56.5
July	'69	67.3	68.8	67.9	75.1	62.7	57.9	59.5
July	'70	65.1	66.3	65.5	72.2	60.3	56.4	57.5
July	'71	64.3	66.2	64.9	71.9	60.3	56.8	57.9
June	'72	64.8	66.9	65.2	72.2	60.1	57.6	58.6
Aug.	'73	64.7	67.1	65.2	72.4	60.9	58.8	59.6

TABLE B. SUMMARY OF SIMPLE LINEAR REGRESSION ANALYSIS*

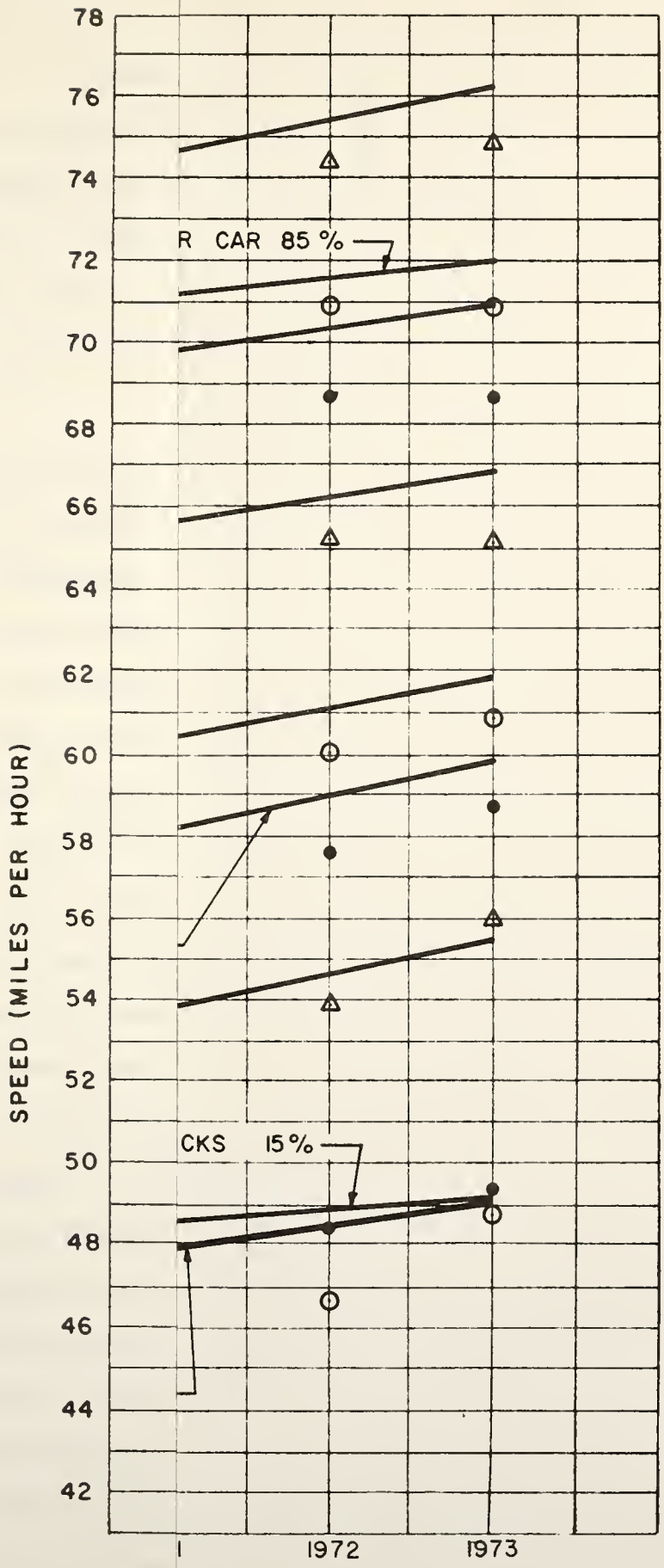
Classification	Observ.	b_o	b_1	R^2	S_{bi}	β_{10} 0.50	β_{10} 0.60	β_{10} 0.75
Interstate Passenger Cars 85%	11	15.660	.830	.674	.193	NR	NR	NR
4-Lane Passenger Cars 85%	11	41.198	.422	.371	.183	NR	NR	NR
2-Lane Passenger Cars 85%	11	34.791	.482	.503	.160	NR	NR	NR
Mean of All Passenger Cars	11	21.435	.622	.636	.157	NR	NR	NR
Mean of All Light Trucks	11	6.507	.758	.759	.142	NR	NR	NR
Mean of All Heavy Trucks	11	2.371	.776	.838	.114	Rej	NR	NR
Interstate Heavy Trucks 15%	11	-7.173	.859	.878	.107	Rej	Rej	NR
4-Lane Heavy Trucks 15%	11	25.162	.331	.292	.172	NR	NR	Rej
2-Lane Heavy Trucks 15%	11	7.960	.566	.652	.138	NR	NR	NR

*All tests at 5% level of significance; H_o: $\beta_1 = \beta_{10}$; $t = \frac{b_1 - \beta_{10}}{s_{b1}}$;

Rejection Region: $|t| \geq t(0.975,9)$; Rej = H_o rejected; NR = H_o not rejected.

The spot speed data for some of the 1969 categories were comparatively higher than the preceding and the following years. This may have adversely affected the coefficient of determination, R^2, for the study. Consequently, the 1969 speed data was deleted and a simple linear regression analysis of speed data was conducted for the same period (1963-1973). Though, this resulted in a higher R^2, the annual trends for the different categories did not change much from the reported trends.

A graphical representation of Table A and B is given in Figure B.


78
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
SPEED (MILES PER HOUR)
R CAR 85 %
CKS 15 %
1
1972
1973

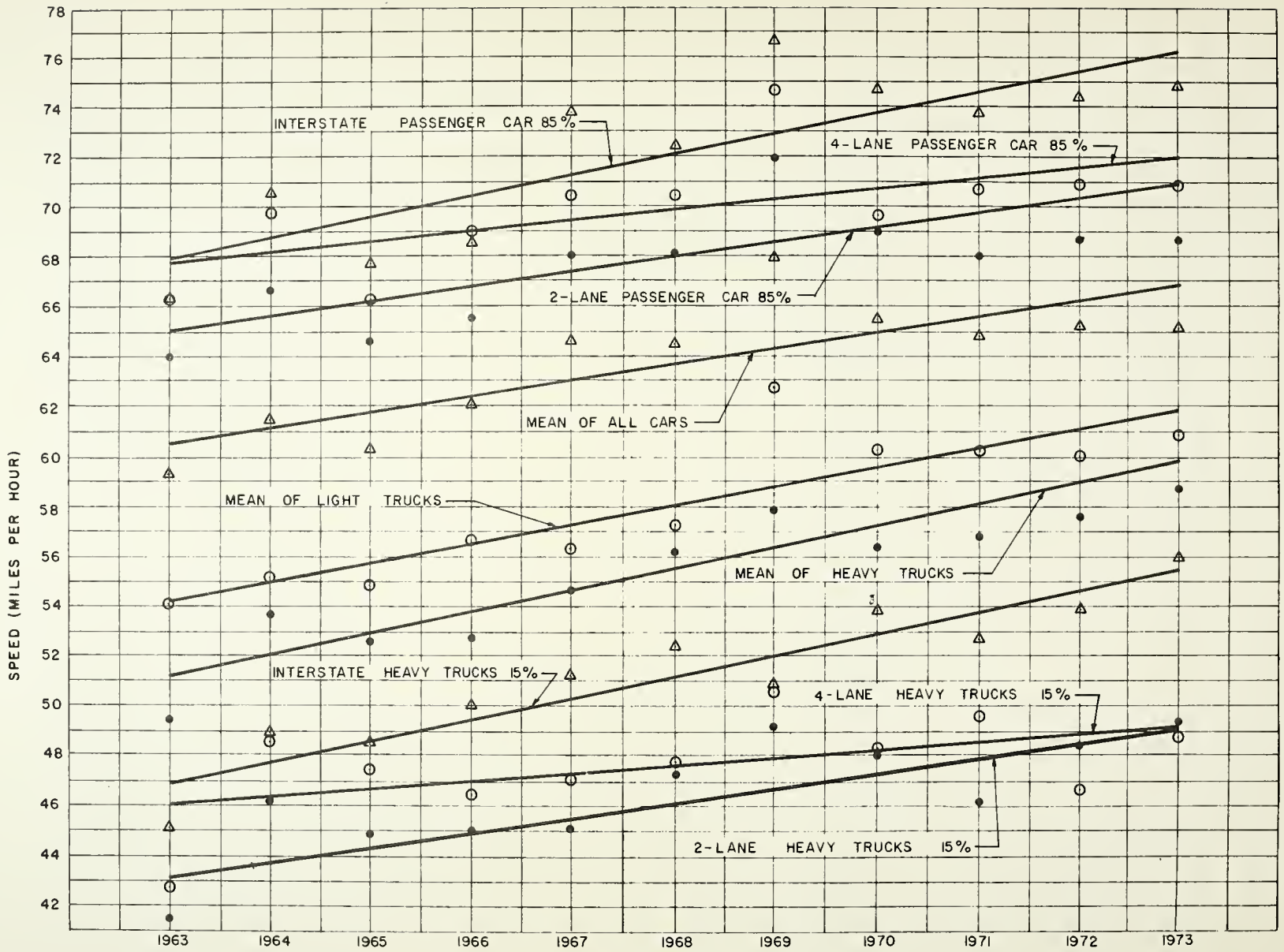


FIG. B – INDIANA RURAL SPEED TRENDS 1963 - 1973

Summary and Conclusions

The average speeds in this study were found to be the same for passenger cars and 1.2 mph higher for heavy trucks than the results of 1972.

The simple linear regression on the results of the past eleven years (1963-1973) concluded at 95% confidence level that:

1. There has been a 0.50 mph/year average annual speed increase for the following seven classifications:
   a. Interstate Passenger Cars 85-percentile,
   b. 4-lane Passenger Cars 85-percentile,
   c. 2-lane Passenger Cars 85-percentile,
   d. Mean of all passenger cars,
   e. Mean of all light trucks,
   f. 4-lane heavy trucks 15-percentile,
   g. 2-lane heavy trucks 15-percentile.
2. An increase of a 0.60 mph/year trend existed for the mean of all heavy trucks. The trend for the interstate heavy trucks (15-percentile) was of an increase of a 0.75 mph/year.
3. The speeds of the past 5 years indicate that the increases during this period have leveled off compared with the period 1962-1967.

The increase in mileage of high type highways such as the interstate system and the growing percentage of vehicles violating current maximum speed limits tend to support the belief that drivers select the travel speeds they consider safe irrespective of the maximum speed limits.

APPENDIX A

Determination of Sample Size

Determination of Sample Size

It was desired that a 95% confidence interval of the true mean of the speed of passenger cars should not be wider than 2 mph. For trucks weighing 5,000 lbs. or more a 95% confidence interval with a 4 mph band was desired.

Assuming a normal distribution of speeds and using the standard deviation of the 1972 data, the minimum sample size requirements were determined by:

$$N = \frac{2t\ S}{L}^{2}$$

N = sample size required

t = tabulated "t" value for the required level of significance

S = estimated standard deviation

L = width of the interval

For Passenger Cars:

$$N = \frac{2 \times 1.96 \times 7.61}{2}^{2} = 223 \text{ observations}$$

For Heavy Trucks:

$$N = \frac{2 \times 1.96 \times 6.93}{4}^{2} = 47 \text{ observations}$$

NOTES:

1. At all stations, except station 8, at least 280 passenger car observations and 59 heavy truck observations were obtained for the study reported herein. Due to the light truck volume at station 8, only 34 heavy truck observations were obtained.

2. Study of the standard deviations for the grouped speed data during the last 10 years showed that the standard deviation for the passenger cars speed data ranged between 7 mph and 8 mph, and that for the heavy trucks speed data ranged between 6 mph and 7 mph. Consequently, for a 95% confidence interval and a tolerable band width of 2 mph and 4 mph for passenger cars and trucks, respectively, it is recommended that the minimum sample size for future studies be specified as 250 observations (corresponding to S = 8 mph) for passenger cars and 50 observations (corresponding to S = 7 mph) for heavy trucks.

APPENDIX B

Speed Data (Tables 1 to 16)

TABLE 1 SPEED DATA

Station 1 Highway I-69 Location 3.3 Miles South of S.R. 18

No. of Lanes 4 Type of Surface Portland Cement Concrete Weather Partly Cloudy

This Observation
Date August 21, 1973
Time 10:40-12:30 P.M.

Last Previous Observation (Speed Report No. 90)
Date July 18, 1972
Time 10:25-12:10 P.M.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
	OBSERVATION	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	287	282	178	189	109	93	105	109	31	25	74	84
	Ave. speed (m.p.h.)	68.96	69.31	69.07	69.27	68.78	69.39	60.44	62.39	61.77	65.40	59.88	61.50
	Standard deviation	6.511	6.061	6.361	6.222	6.775	5.752	6.867	6.113	6.065	5.937	7.140	5.908
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	44 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	49 m.p.h.	0.35	0.0	0.0	0.0	0.92	0.0	9.52	2.57	3.23	0.0	12.16	3.57
	54 m.p.h.	2.79	2.13	2.25	2.12	3.67	2.15	20.00	6.42	9.68	0.0	24.32	8.33
	59 m.p.h.	8.01	6.74	6.74	6.35	10.09	7.53	40.00	33.03	29.03	12.00	44.59	39.29
	64 m.p.h.	18.47	20.21	19.10	21.16	17.43	16.13	66.67	66.06	67.74	52.00	66.22	70.24
	69 m.p.h.	51.57	47.87	52.81	49.74	49.54	44.09	95.24	86.24	93.55	76.00	95.95	89.29
	74 m.p.h.	85.02	84.40	86.52	83.60	82.57	86.02	99.05	99.08	96.77	96.00	100.0	100.0
	79 m.p.h.	95.47	95.04	94.38	94.71	97.25	95.70	100.0	99.08	100.0	96.00	100.0	100.0
	84 m.p.h.	99.30	99.65	98.88	99.47	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	99.65	100.0	99.44	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	144	141	90	93	54	48	53	96	14	12	39	84
	Average speed	70.19	69.15	70.01	69.13	70.48	69.19	64.06	62.17	63.36	66.83	64.31	61.50
Bnd	No. of vehicles obs.	143	141	88	96	55	45	52	13	17	13	35	0
	Average speed	67.72	69.47	68.10	69.41	67.11	69.60	56.75	64.08	60.47	64.08	54.94	----

TABLE 2 SPEED DATA

Station 2 Highway I-65 Location 1.0 Mile West of S.R. 334

No. of Lanes 4 Type of Surface Portland Cement Concrete Weather Partly Cloudy

This Observation
Date August 27, 1973
Time 10:15-12:25 P.M.

Last Previous Observation (Speed Report No. 90)
Date August 16, 1972
Time 3:00-4:55 P.M.

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	285	280	226	158	59	122	109	108	31	35	78	73
	Ave. speed (m.p.h.)	69.38	69.95	69.45	69.90	69.10	70.01	61.53	62.27	64.52	64.14	60.35	61.37
	Standard deviation	5.324	5.984	5.510	5.966	4.574	6.031	5.808	5.924	5.983	5.766	5.325	5.825
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	44 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	49 m.p.h.	0.35	0.36	0.44	0.0	0.0	0.82	0.92	0.93	0.0	0.0	1.28	1.37
	54 m.p.h.	0.70	1.43	0.88	0.63	0.0	2.46	9.17	10.19	3.23	5.71	11.54	12.33
	59 m.p.h.	2.81	3.93	3.54	2.53	0.0	5.74	39.45	34.26	22.58	28.57	46.15	36.99
	64 m.p.h.	16.84	17.14	17.26	17.72	15.25	16.39	69.72	59.26	48.39	45.71	78.21	65.75
	69 m.p.h.	50.18	41.43	48.23	45.57	57.63	36.07	88.99	89.81	77.42	80.00	93.59	94.52
	74 m.p.h.	86.32	81.43	86.28	79.75	86.44	83.61	98.7	98.15	93.55	97.14	100.0	98.63
	79 m.p.h.	97.54	94.29	97.79	93.04	96.61	95.90	100.0	100.0	100.0	100.0	100.0	100.0
	84 m.p.h.	99.65	99.64	99.56	99.37	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	100.0	99.64	100.0	99.37	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	142	140	112	78	30	62	55	54	9	21	46	33
	Average speed	78.74	68.65	68.64	68.73	69.10	68.55	60.51	61.41	66.33	62.95	59.37	60.42
Bnd	No. of vehicles obs.	143	140	114	80	29	60	54	58	22	14	32	40
	Average speed	70.01	71.24	70.25	71.04	69.10	71.52	62.57	63.13	63.77	65.93	61.75	62.15

TABLE 3 SPEED DATA

Station 3 Highway I-74 Location 1.0 Mile East of Post Road

No. of Lanes 4 Type of Surface Portland Cement Concrete Weather Sunny

This Observation
Date August 16, 1973
Time 2:05-3:50 P.M.

Last Previous Observation (Speed Report No. 90)
Date August 16, 1972
Time 12:20-2:10 P.M.

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	281	280	204	202	77	78	110	108	51	46	59	62
	Ave. speed (m.p.h.)	68.77	69.05	68.41	68.37	69.71	70.82	62.93	62.42	64.29	63.76	61.75	61.42
	Standard deviation	6.153	6.149	6.650	6.294	4.483	5.405	6.100	6.930	6.703	7.648	5.303	6.221
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	44 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.
	49 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.85	0.0	2.17	0.0	1.61
	54 m.p.h.	1.42	2.50	1.96	3.47	0.0	0.0	2.73	3.70	5.88	2.17	0.0	4.84
	59 m.p.h.	7.47	7.86	9.31	9.41	2.60	3.85	11.82	9.26	7.84	13.04	15.25	6.45
	64 m.p.h.	21.71	21.07	25.98	24.26	10.39	12.82	28.18	34.26	19.61	32.61	35.59	35.48
	69 m.p.h.	53.02	46.07	55.88	50.50	45.45	34.26	56.36	61.11	41.18	45.65	69.49	72.58
	74 m.p.h.	85.05	84.64	83.33	86.63	89.61	79.49	88.18	85.19	82.35	80.43	93.22	88.71
	79 m.p.h.	96.44	97.14	96.08	98.02	97.40	94.87	97.27	97.22	96.08	93.48	98.31	100.0
	84 m.p.h.	99.64	100.0	99.51	100.0	100.0	100.0	99.09	99.07	98.04	97.83	100.0	100.0
	89 m.p.h.	99.64	100.0	99.51	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	141	140	99	85	42	55	55	54	26	26	29	28
	Average speed	68.80	68.51	68.64	67.34	69.19	70.33	63.31	62.87	63.65	62.27	63.00	63.43
Bnd	No. of vehicles obs.	140	140	105	117	35	23	55	54	25	20	30	34
	Average speed	68.73	69.59	68.19	69.12	70.34	72.00	62.55	61.96	64.96	65.70	60.43	59.76

TABLE 4 SPEED DATA

Station 4 Highway I-65 Location 7.5 Miles North of S.R. 160

No. of Lanes 4 Type of Surface Portland Cement Concrete Weather Partly Cloudy

This Observation
Date August 23, 1973
Time 11:55-2:00 P.M.

Last Previous Observation (Speed Report No. 90)
Date August 17, 1972
Time 12:20-2:20 P.M.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
	OBSERVATION	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	285	283	176	158	109	125	112	114	19	27	93	87
	Ave. speed (m.p.h.)	69.89	70.02	69.55	69.72	70.45	70.39	62.07	62.17	63.68	63.15	61.74	61.86
	Standard deviation	6.317	6.462	6.856	6.775	5.317	6.049	6.149	5.139	7.910	6.407	5.722	4.756
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	44 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	49 m.p.h.	0.35	0.71	0.57	0.63	0.0	0.80	2.68	0.0	5.26	0.0	2.15	0.0
	54 m.p.h.	2.46	1.77	3.98	2.53	0.0	0.80	12.50	7.89	15.79	11.11	11.83	6.90
	59 m.p.h.	7.37	6.01	9.66	6.33	3.67	5.60	31.25	28.95	36.84	33.33	30.11	27.59
	64 m.p.h.	16.49	16.25	19.32	16.46	11.93	16.00	60.71	67.54	42.11	55.56	64.52	71.26
	69 m.p.h.	44.56	42.76	44.32	46.84	44.95	37.60	88.39	92.11	73.68	81.48	91.40	95.40
	74 m.p.h.	80.00	81.27	81.25	82.91	77.98	79.20	99.11	100.0	100.0	100.0	98.92	100.0
	79 m.p.h.	94.04	92.93	93.75	91.77	94.50	94.40	100.0	100.0	100.0	100.0	100.0	100.0
	84 m.p.h.	100.0	98.59	100.0	97.47	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	100.0	99.65	100.0	99.37	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	141	140	82	83	59	57	58	60	11	12	47	48
	Average speed	70.49	70.36	70.72	69.92	70.17	71.02	60.84	62.38	63.18	63.50	60.30	62.10
Bnd	No. of vehicles obs.	144	143	94	75	50	68	54	54	8	15	46	39
	Average speed	69.31	69.68	68.53	69.51	70.78	69.87	63.39	61.93	64.38	62.87	63.22	61.56

TABLE 5 SPEED DATA

Station 5 Highway U.S. 31 Location 1.2 Miles South of S.R. 38

No. of Lanes 4 Type of Surface Asphalt Concrete Weather Partly Cloudy

This Observation
Date August 16, 1973
Time 10:50-12:45 P.M.

Last Previous Observation (Speed Report No. 90)
Date June 26, 1972
Time 11:08-1:15 P.M.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
	OBSERVATION	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	279	280	243	234	36	46	116	108	47	43	69	65
	Ave. speed (m.p.h.)	65.35	66.37	65.30	66.10	65.64	67.76	58.92	61.22	61.21	62.95	57.36	60.08
	Standard deviation	7.054	6.590	6.959	6.472	7.765	7.075	7.270	6.501	8.772	7.108	5.589	5.845
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	44 m.p.h.	0.36	0.71	0.0	0.85	2.78	0.0	2.59	1.85	4.26	2.33	1.45	1.54
	49 m.p.h.	1.43	1.43	1.23	1.71	2.78	0.0	7.76	4.63	8.51	6.98	7.25	3.08
	54 m.p.h.	6.09	4.29	6.17	5.13	5.56	0.0	29.31	13.89	21.28	11.63	34.78	15.38
	59 m.p.h.	17.56	13.21	18.11	12.39	13.89	17.39	51.72	36.11	40.43	27.91	59.42	41.54
	64 m.p.h.	43.37	36.79	43.21	37.61	44.44	32.61	81.03	71.30	63.83	53.49	92.75	83.08
	69 m.p.h.	75.63	71.79	76.54	73.50	69.44	63.04	90.52	91.67	78.72	86.05	98.55	95.38
	74 m.p.h.	90.68	92.50	91.36	93.59	86.11	86.96	99.14	99.07	97.87	97.67	100.0	100.0
	79 m.p.h.	97.13	96.79	97.53	97.86	94.44	91.30	100.0	100.0	100.0	100.0	100.0	100.0
	84 m.p.h.	99.28	99.29	99.18	99.57	100.0	97.83	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	99.64	100.0	99.59	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	139	140	115	119	24	21	53	54	17	25	36	29
	Average speed	63.91	66.71	63.58	66.66	65.46	67.05	56.96	62.93	57.59	64.96	56.67	61.17
Bnd	No. of vehicles obs.	140	140	128	115	12	25	63	54	30	18	33	36
	Average speed	66.78	66.03	66.85	65.52	66.00	68.36	60.57	59.52	63.27	60.17	58.12	59.19

TABLE 6 SPEED DATA

Station 6 Highway U.S. 52 Location 1.0 Mile East of S.R. 28

No. of Lanes 4 Type of Surface Asphalt Concrete Weather Hazy

This Observation
Date August 13, 1973
Time 9:55-3:40 P.M.

Last Previous Observation (Speed Report No. 90)
Date June 14, 1972
Time 9:05-2:45 P.M.

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	283	288	240	252	43	36	104	110	58	49	46	61
	Ave. speed (m.p.h.)	65.79	66.20	65.68	66.15	66.42	66.56	58.72	61.14	61.47	63.86	55.26	59.05
	Standard deviation	7.915	8.013	8.095	8.345	6.874	5.190	9.043	9.304	8.810	9.081	8.180	8.990
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.35	0.0	0.42	0.0	0.0	0.0	2.88	0.91	1.72	0.0	4.35	1.64
	44 m.p.h.	0.71	0.69	0.83	0.79	0.0	0.0	6.73	4.55	1.72	2.04	13.04	6.56
	49 m.p.h.	3.18	2.08	3.33	1.98	2.33	2.78	11.54	12.73	3.45	8.16	21.74	16.39
	54 m.p.h.	9.19	6.94	9.58	7.54	6.98	2.78	29.81	23.64	22.41	14.29	39.13	31.15
	59 m.p.h.	19.08	17.36	20.00	19.05	13.95	5.56	53.85	42.73	43.10	30.61	67.39	52.46
	64 m.p.h.	37.46	42.01	37.50	44.05	37.21	27.78	75.00	62.73	67.24	53.06	84.78	70.49
	69 m.p.h.	69.96	67.71	72.08	67.06	58.14	72.22	89.42	82.73	82.76	73.47	97.83	90.16
	74 m.p.h.	87.99	88.54	87.50	86.90	90.70	100.0	96.15	94.55	93.10	89.80	100.0	98.36
	79 m.p.h.	96.82	95.14	96.25	94.44	100.0	100.0	99.04	98.18	98.28	95.92	100.0	100.0
	84 m.p.h.	99.29	98.26	99.07	98.02	100.0	100.0	99.04	100.0	98.28	100.0	100.0	100.0
	89 m.p.h.	99.65	99.31	99.58	99.21	100.0	100.0	99.04	100.0	98.28	100.0	100.0	100.0
Bnd	No. of vehicles obs.	142	145	120	126	22	19	52	55	26	28	26	27
	Average speed	66.19	67.26	65.91	67.38	67.73	66.42	59.02	63.64	61.69	65.04	56.54	62.19
Bnd	No. of vehicles obs.	141	143	120	126	21	17	52	55	32	21	20	34
	Average speed	65.39	65.14	65.45	64.93	65.05	66.71	58.33	58.75	61.28	62.29	53.60	56.56

TABLE 7 SPEED DATA

Station 7 Highway U.S. 41 Location 1.0 Mile North of S.R. 2

No. of Lanes 4 Type of Surface Asphalt Concrete Weather Hazy

This Observation
Date August 20, 1973
Time 10:50-2:20 P.M.

Last Previous Observation (Speed Report No. 90)
Date July 17, 1972
Time 10:33-2:35 P.M.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
	OBSERVATION	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	284	288	229	213	55	75	105	109	30	28	75	81
All Vehicles	Ave. speed (m.p.h.)	63.73	62.56	63.99	62.67	62.67	62.23	55.59	56.50	57.70	60.14	54.75	55.23
All Vehicles	Standard deviation	8.114	8.652	8.135	8.453	8.012	9.245	7.201	8.613	7.335	7.570	7.019	8.633
All Vehicles	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Vehicles	% of vehicles traveling at or less than 29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Vehicles	% of vehicles traveling at or less than 34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.83	0.0	0.0	0.0	2.47
All Vehicles	% of vehicles traveling at or less than 39 m.p.h.	0.0	1.04	0.0	0.47	0.0	2.67	0.0	3.67	0.0	0.0	0.0	4.94
All Vehicles	% of vehicles traveling at or less than 44 m.p.h.	1.76	3.13	1.75	2.82	1.82	4.00	8.57	9.17	3.33	3.57	10.67	11.11
All Vehicles	% of vehicles traveling at or less than 49 m.p.h.	4.58	6.25	3.49	6.10	9.09	6.67	24.76	22.02	16.67	10.71	28.00	25.93
All Vehicles	% of vehicles traveling at or less than 54 m.p.h.	12.32	17.71	11.79	16.90	14.55	20.00	41.90	35.74	33.33	21.43	45.33	40.74
All Vehicles	% of vehicles traveling at or less than 59 m.p.h.	25.70	32.99	24.45	32.86	30.91	33.33	70.48	60.55	60.00	42.86	74.67	66.67
All Vehicles	% of vehicles traveling at or less than 64 m.p.h.	52.46	61.46	52.84	60.56	50.91	64.00	87.62	87.16	76.67	75.00	92.00	91.36
All Vehicles	% of vehicles traveling at or less than 69 m.p.h.	78.52	79.51	77.73	79.81	81.82	78.67	98.10	95.41	96.67	92.86	98.67	96.30
All Vehicles	% of vehicles traveling at or less than 74 m.p.h.	93.31	93.40	92.14	93.90	98.18	92.00	100.0	98.17	100.0	96.43	100.0	98.77
All Vehicles	% of vehicles traveling at or less than 79 m.p.h.	97.89	96.88	97.38	96.71	100.0	97.33	100.0	100.0	100.0	100.0	100.0	100.0
All Vehicles	% of vehicles traveling at or less than 84 m.p.h.	99.30	99.31	99.13	99.53	100.0	98.67	100.0	100.0	100.0	100.0	100.0	100.0
All Vehicles	% of vehicles traveling at or less than 89 m.p.h.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	141	148	114	116	27	32	53	55	17	19	36	36
Bnd	Average speed	64.71	60.47	64.97	61.16	63.59	57.97	53.34	52.65	58.18	58.84	51.06	49.39
Bnd	No. of vehicles obs.	143	140	115	97	28	43	52	54	13	9	39	45
Bnd	Average speed	62.77	64.76	63.01	64.47	61.79	65.40	57.88	60.41	57.08	62.89	58.15	59.91

TABLE 8 SPEED DATA

Station 8 Highway U.S. 52 Location 1.0 Miles West of Klondike

No. of Lanes 4 Type of Surface Asphalt Concrete Weather Partly Cloudy

This Observation
Date June 11, 1973
Time 1:45-4:20 P.M.

Last Previous Observation (Speed Report No. 90)
Date June 6, 1972
Time 10:00-3:30 P.M.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
	OBSERVATION	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	284	280	255	253	29	27	105	108	60	74	45	34
	Ave. speed (m.p.h.)	62.38	60.59	62.35	60.96	62.69	57.04	54.94	57.53	56.75	57.72	52.53	57.12
	Standard deviation	7.024	7.836	7.079	7.720	6.623	8.169	8.116	7.345	8.181	7.484	7.452	7.126
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.95	0.0	1.67	0.0	0.0	0.0
	39 m.p.h.	0.35	0.71	0.39	0.79	0.0	0.0	4.76	0.0	3.33	0.0	6.67	0.0
	44 m.p.h.	0.35	3.93	0.39	3.95	0.0	3.70	8.57	7.41	5.00	6.76	13.33	8.82
	49 m.p.h.	3.52	9.29	3.53	7.91	3.45	22.22	24.76	14.81	20.00	16.22	31.11	11.76
	54 m.p.h.	11.27	20.00	11.67	18.18	6.90	37.04	45.71	31.48	36.67	27.03	57.78	41.18
	59 m.p.h.	33.10	39.64	33.33	37.55	31.03	59.26	67.62	60.19	56.67	58.11	82.22	64.71
	64 m.p.h.	61.97	70.00	62.35	68.38	58.62	85.19	90.48	77.78	86.67	77.03	95.56	79.41
	69 m.p.h.	87.32	88.93	87.45	88.54	86.21	92.59	98.10	96.30	96.67	97.30	100.0	94.12
	74 m.p.h.	95.42	97.50	95.29	97.23	96.55	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	79 m.p.h.	97.54	99.29	97.65	99.21	96.55	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	84 m.p.h.	99.65	100.0	99.61	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	100.0	100.0	000.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	142	140	133	129	9	11	52	54	27	38	25	16
	Average speed	63.68	61.56	63.59	62.02	65.00	56.18	57.23	59.11	58.59	58.68	55.44	60.12
Bnd	No. of vehicles obs.	142	140	122	124	20	16	58	54	33	36	20	18
	Average speed	61.08	59.61	60.99	59.87	61.65	57.62	52.70	55.94	55.00	56.69	48.90	54.44

TABLE 9 SPEED DATA

Station 9 Highway U.S. 35 Location 1.5 Miles East of Junction I-69

No. of Lanes 2 Type of Surface Asphalt Concrete Weather Partly Cloudy

This Observation
Date August 21, 1973
Time 2:10-4:20 P.M.

Last Previous Observation (Speed Report No. 90)
Date July 18, 1972
Time 1:05-2:55 P.M.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
	OBSERVATION	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	291	282	267	263	24	19	104	109	49	47	55	62
	Ave. speed (m.p.h.)	62.09	61.26	62.05	61.27	62.50	61.11	56.87	58.43	59.24	61.89	54.75	55.81
	Standard deviation	6.930	7.048	6.923	7.080	7.144	6.765	6.548	7.413	6.156	7.844	6.195	5.886
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.96	0.92	0.0	0.0	1.82	1.61
	44 m.p.h.	0.69	0.35	0.75	0.38	0.0	0.0	3.85	2.75	2.04	2.13	5.45	3.23
	49 m.p.h.	2.75	4.61	2.62	4.56	4.17	5.26	16.35	11.93	8.16	6.38	23.64	16.13
	54 m.p.h.	13.06	16.31	13.48	16.35	8.33	15.79	31.73	30.28	20.41	17.02	41.82	40.32
	59 m.p.h.	32.65	38.30	33.33	39.16	25.00	26.32	58.65	50.46	40.82	29.79	74.55	66.13
	64 m.p.h.	67.01	70.57	66.67	69.96	70.83	78.95	92.31	82.57	87.76	70.21	96.36	91.94
	69 m.p.h.	86.94	87.59	86.89	87.45	87.50	89.47	44.04	92.66	97.96	82.98	100.0	100.0
	74 m.p.h.	95.19	96.81	95.13	96.96	95.83	94.74	100.0	97.25	100.0	93.62	100.0	100.0
	79 m.p.h.	98.63	99.29	98.88	99.24	95.83	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	84 m.p.h.	100.0	99.65	100.0	99.62	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	140	140	122	130	18	10	52	55	19	24	33	31
	Average speed	62.73	61.11	62.76	61.25	62.50	59.40	56.79	58.96	61.21	63.00	54.24	55.84
Bnd	No. of vehicles obs.	151	142	145	133	6	9	52	54	30	23	22	31
	Average speed	61.49	61.41	61.45	61.30	62.50	63.00	56.94	57.89	58.00	60.74	55.50	55.77

TABLE 10 SPEED DATA

Station 10 Highway U.S. 43 Location 2.0 Miles South of Chalmers

No. of Lanes 2 Type of Surface Asphalt Concrete Weather Hazy

This Observation
Date August 29, 1973
Time 9:20-12:00 A.M.

Last Previous Observation (Speed Report No. 90)
Date June 29, 1972
Time 9:30-12:15 P.M.

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	277	281	259	269	18	12	106	108	49	49	57	59
	Ave. speed (m.p.h.)	63.83	64.56	63.66	64.38	66.28	68.42	58.17	57.69	59.69	57.67	56.87	57.69
	Standard deviation	7.112	7.426	7.151	7.461	6.182	5.534	7.750	7.093	8.439	7.116	6.914	7.135
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	1.89	0.0	2.04	0.0	1.75	0.0
	44 m.p.h.	0.36	1.07	0.39	1.12	0.0	0.0	3.77	2.78	2.04	2.04	5.26	3.39
	49 m.p.h.	2.53	3.91	2.32	4.09	5.56	0.0	13.21	11.11	12.24	10.20	14.04	11.86
	54 m.p.h.	9.03	7.47	9.27	7.81	5.56	0.0	28.30	32.41	22.45	40.82	33.33	25.42
	59 m.p.h.	26.71	22.06	28.19	23.05	5.56	0.0	57.55	58.33	46.94	61.22	66.67	55.93
	64 m.p.h.	54.51	47.33	56.37	48.33	27.78	25.00	81.13	83.33	73.47	77.55	87.72	88.14
	69 m.p.h.	80.51	77.58	80.69	77.70	77.78	75.00	95.28	94.44	93.88	95.92	96.49	93.22
	74 m.p.h.	93.86	93.24	93.82	93.31	94.44	91.67	98.11	100.0	95.92	100.0	100.0	100.0
	79 m.p.h.	98.56	97.86	98.46	98.14	100.0	91.67	98.11	100.0	95.92	100.0	100.0	100.0
	84 m.p.h.	98.92	99.64	98.84	99.63	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	99.64	100.0	99.61	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	137	141	127	135	10	6	53	54	25	17	28	37
	Average speed	63.05	64.47	62.87	64.37	65.40	66.67	58.55	58.13	60.64	58.82	56.68	57.81
Bnd	No. of vehicles obs.	140	140	132	134	8	6	53	54	24	32	29	22
	Average speed	64.59	64.64	64.42	64.40	67.37	70.17	57.79	57.24	58.71	57.06	57.03	57.50

TABLE 11 SPEED DATA

Station 11 Highway U.S. 31 Location 3.0 Miles South of Rochester

No. of Lanes 2 Type of Surface Asphalt Concrete Weather Hazy

This Observation
Date August 15, 1973
Time 11:25-2:15 P.M.

Last Previous Observation (Speed Report No. 90)
Date June 27, 1972
Time 11:50-2:20 P.M.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
	OBSERVATION	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	279	284	230	221	49	63	105	108	30	33	75	75
	Ave. speed (m.p.h.)	61.90	61.02	61.60	61.14	63.29	60.57	57.03	56.60	56.97	56.82	57.05	56.51
	Standard deviation	6.824	6.757	7.072	6.976	5.362	5.953	5.438	6.117	6.568	6.678	4.964	5.899
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.95	0.0	3.33	0.0	0.0	0.0
	44 m.p.h.	0.36	1.06	0.43	0.90	0.0	1.59	0.95	5.56	3.33	3.03	0.0	6.67
	49 m.p.h.	3.23	4.23	3.91	4.07	0.0	4.76	9.52	12.04	10.00	9.09	9.33	13.33
	54 m.p.h.	13.26	16.20	15.22	16.74	4.08	14.29	22.86	27.78	23.33	36.36	22.67	24.00
	59 m.p.h.	34.41	40.49	36.09	41.18	26.53	38.10	72.38	70.37	73.33	66.67	72.00	72.00
	64 m.p.h.	67.74	72.18	69.57	71.49	59.18	74.60	92.38	92.59	86.67	87.88	94.67	94.67
	69 m.p.h.	87.81	90.14	87.83	88.69	87.76	95.24	100.0	98.15	100.0	93.94	100.0	100.0
	74 m.p.h.	95.70	97.18	94.78	96.38	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	79 m.p.h.	98.57	100.0	98.26	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	84 m.p.h.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100 0	100.0	100.0
Bnd	No. of vehicles obs.	140	143	117	112	23	31	52	54	16	13	36	41
	Average speed	62.11	60.96	61.80	61.25	63.70	59.90	58.04	57.09	58.44	56.08	57.86	57.41
Bnd	No. of vehicles obs.	139	141	113	109	26	32	53	54	14	20	39	34
	Average speed	61.68	61.08	61.40	61.04	62.92	61.22	56.04	56.11	55.29	57.30	56.31	55.41

TABLE 12 SPEED DATA

Station 12 Highway S.R. 25 Location 0.7 Mile West of Americus

No. of Lanes 2 Type of Surface Asphalt Concrete Weather Hazy

This Observation
Date August 17, 1973
Time 10:30-1:05 P.M.

Last Previous Observation (Speed Report No. 90)
Date June 7, 1972
Time 8:35-11:15 A.M.

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	286	287	262	264	24	23	104	110	49	46	55	64
	Ave. speed (m.p.h.)	60.29	61.44	60.54	61.55	57.62	60.17	54.84	56.55	56.59	57.72	53.27	55.72
	Standard deviation	7.160	6.987	7.188	7.050	6.392	6.213	6.866	6.425	7.331	6.400	6.072	6.361
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.96	0.0	2.04	0.0	0.0	0.0
	44 m.p.h.	1.75	0.35	1.53	0.38	4.17	0.0	5.77	4.55	4.08	4.35	7.27	4.69
	49 m.p.h.	6.29	3.14	5.34	3.03	16.67	4.35	23.08	10.91	14.29	10.87	30.91	10.94
	54 m.p.h.	19.23	15.33	18.70	15.53	25.00	13.04	52.88	37.27	42.86	28.26	61.82	43.75
	59 m.p.h.	46.15	38.33	46.18	37.50	45.83	47.83	77.88	67.27	69.39	63.04	85.45	70.31
	64 m.p.h.	72.03	68.99	70.23	68.56	91.67	73.91	91.35	87.27	85.71	84.78	96.36	89.06
	69 m.p.h.	90.21	89.55	89.31	89.02	100.0	95.65	98.08	98.18	95.92	95.65	100.0	100.0
	74 m.p.h.	97.55	95.82	97.33	95.45	100.0	100.0	99.04	100.0	97.96	100.0	100.0	100.0
	79 m.p.h.	98.95	98.61	98.85	98.48	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	84 m.p.h.	100.0	99.65	100.00	99.62	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	100.0	99.65	100.0	99.62	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bnd	No. of vehicles obs.	140	146	126	126	14	20	52	56	27	22	25	34
	Average speed	59.43	60.90	59.92	61.00	55.00	60.25	54.08	57.04	55.96	56.64	52.04	57.29
Bnd	No. of vehicles obs.	146	141	136	138	10	3	52	54	22	24	30	30
	Average speed	61.12	62.00	61.11	62.05	61.30	59.67	55.60	56.06	57.36	58.71	54.30	53.94

TABLE 13 SPEED DATA

Station 1,2,3,4 Highway Interstate Location See Individual Stations

No. of Lanes _____ Type of Surface _____ Weather _____

This Observation
Date _____
Time _____

Last Previous Observation (Speed Report No. 90)
Date _____
Time _____

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	1138	1125	784	707	354	418	436	439	132	133	304	306
	Ave. speed (m.p.h.)	69.25	69.58	69.11	69.25	69.55	70.14	61.76	62.31	63.67	64.05	60.93	61.56
	Standard deviation	6.101	6.173	6.328	6.331	5.561	5.862	6.279	6.041	6.598	6.599	5.958	5.628
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	44 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.68	0.0	0.75	0.0	0.65
	49 m.p.h.	0.26	0.27	0.26	0.14	0.28	0.48	3.90	1.82	3.79	0.75	3.95	2.29
	54 m.p.h.	1.85	1.96	2.17	2.26	1.13	1.44	13.30	8.43	8.33	8.27	15.46	8.50
	59 m.p.h.	6.41	6.13	7.14	6.36	4.80	5.74	34.63	32.57	25.00	27.82	38.82	34.64
	64 m.p.h.	18.37	18.67	20.41	20.23	13.84	16.03	63.30	63.55	49.24	48.87	69.41	69.93
	69 m.p.h.	49.82	44.53	50.38	48.37	48.59	38.04	90.14	88.38	82.58	79.70	93.42	92.16
	74 m.p.h.	84.09	82.93	84.44	83.54	83.33	82.06	98.39	98.63	96.21	96.24	99.34	99.67
	79 m.p.h.	95.87	94.84	95.66	94.63	96.33	95.22	99.77	99.54	99.24	98.50	100.0	100.0
	84 m.p.h.	99.67	99.47	99.49	99.15	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	99.82	99.82	99.74	99.72	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 14 SPEED DATA

Station 5,6,7,8 Highway 4-Lanes Location See Individual Stations

No. of Lanes _____ Type of Surface _____ Weather _____

This Observation
Date _____
Time _____

Last Previous Observation (Speed Report No. 90)
Date _____
Time _____

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	1130	1136	967	952	163	184	430	435	195	194	235	241
	Ave. speed (m.p.h.)	64.31	63.94	64.31	63.98	64.32	63.70	57.09	59.11	59.37	60.78	55.19	57.77
	Standard deviation	7.655	8.183	7.674	8.095	7.563	8.643	8.098	8.275	8.611	8.235	7.126	8.076
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.23	0.46	0.51	0.0	0.0	0.83
	39 m.p.h.	0.18	0.44	0.21	0.32	0.0	1.09	1.86	1.15	1.54	0.0	2.13	2.07
	44 m.p.h.	0.80	2.11	0.72	2.10	1.23	2.17	6.51	5.75	3.59	4.12	8.94	7.05
	49 m.p.h.	3.19	4.75	2.90	4.41	4.91	6.52	16.98	13.56	11.79	11.34	21.28	15.35
	54 m.p.h.	9.73	12.24	9.82	11.87	9.20	14.13	36.51	26.21	28.21	19.59	43.40	31.54
	59 m.p.h.	23.89	25.79	24.10	25.42	22.70	27.72	60.70	49.89	49.23	42.27	70.21	56.02
	64 m.p.h.	48.85	52.55	49.12	52.63	47.24	52.17	83.49	74.71	73.85	65.46	91.49	82.16
	69 m.p.h.	77.88	76.94	78.59	77.21	73.62	75.54	93.95	91.49	88.21	88.14	98.72	94.19
	74 m.p.h.	91.86	92.96	91.62	92.86	93.25	93.48	98.84	97.93	97.44	96.39	100.0	99.17
	79 m.p.h.	97.35	97.01	97.21	97.06	98.16	96.74	99.77	99.54	99.49	98.97	100.0	100.0
	84 m.p.h.	99.38	99.21	99.28	99.26	100.0	98.91	99.77	100.0	99.49	100.0	100.0	100.0
	89 m.p.h.	99.82	99.82	99.79	99.79	100.0	100.0	99.77	100.0	99.49	100.0	100.0	100.0

TABLE 15 SPEED DATA

Station 9,10,11,12 Highway 2-Lane Location See Individual Stations

No. of Lanes _____ Type of Surface _____ Weather _____

This Observation
Date _____
Time _____

Last Previous Observation (Speed Report No. 90)
Date _____
Time _____

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	1133	1134	1018	1017	115	117	419	435	177	175	242	260
	Ave. speed (m.p.h.)	62.01	62.06	61.97	62.14	62.41	61.38	56.73	57.32	58.25	58.66	55.62	56.42
	Standard deviation	7.109	7.193	7.164	7.269	6.623	6.485	6.788	6.804	7.309	7.281	6.162	6.319
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	1.19	0.23	1.69	0.0	0.83	0.38
	44 m.p.h.	0.79	0.71	0.79	0.69	0.87	0.85	3.58	3.91	2.82	2.86	4.13	4.62
	49 m.p.h.	3.71	3.97	3.54	3.93	5.22	4.27	15.51	11.49	11.30	9.14	18.60	13.08
	54 m.p.h.	13.68	13.84	14.15	13.96	9.57	12.82	33.89	31.95	27.68	30.29	38.43	33.08
	59 m.p.h.	35.04	34.83	36.95	34.91	26.96	34.19	66.59	61.61	55.93	54.29	74.38	66.54
	64 m.p.h.	65.40	64.81	65.62	64.21	63.48	70.09	89.26	86.44	83.05	79.43	93.80	91.15
	69 m.p.h.	86.41	86.24	86.15	85.55	88.70	92.31	98.09	95.86	96.61	92.00	99.17	98.46
	74 m.p.h.	95.59	95.77	95.28	95.48	98.26	98.29	99.28	99.31	98.31	98.29	100.0	100.0
	79 m.p.h.	98.68	98.94	98.62	98.92	99.13	99.15	99.52	100.0	98.87	100.0	100.0	100.0
	84 m.p.h.	99.74	99.74	99.71	99.71	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	89 m.p.h.	99.91	99.91	99.90	99.90	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 16 SPEED DATA

Station 1-12 Highway Indiana System Location See Individual Stations

No. of Lanes _____ Type of Surface _____ Weather _____

This Observation
Date _____
Time _____

Last Previous Observation (Speed Report No. 90)
Date _____
Time _____

	OBSERVATION	PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		<5000 lbs.		>5000 lbs.	
		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All Vehicles	No. of vehicles obs.	3401	3395	2769	2676	632	719	1285	1309	504	502	781	807
	Ave. speed (m.p.h.)	65.20	65.18	64.81	64.67	66.90	67.06	58.56	59.59	60.10	60.90	57.56	58.77
	Standard deviation	7.607	7.904	7.684	7.880	7.018	7.710	7.453	7.387	7.961	7.772	6.931	7.019
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.08	0.15	0.20	0 .0	0.0	0.25
	39 m.p.h.	0.06	0.15	0.07	0.11	0.0	0.28	1.01	0.46	1.19	0.0	0.90	0.74
	44 m.p.h.	0.53	0.94	0.54	1.01	0.47	0.70	3.25	3.44	2.38	2.79	3.97	3.84
	49 m.p.h.	2.38	3.06	2.38	3.10	2.37	2.64	12.06	8.94	9.52	7.77	13.70	9.67
	54 m.p.h.	8.41	9.37	9.25	10.13	4.75	6.54	27.78	22.15	22.82	20.32	30.99	23.30
	59 m.p.h.	21.76	22.30	23.65	23.99	13.45	15.99	53.77	47.98	45.24	42.63	59.28	51.30
	64 m.p.h.	44.16	45.42	47.06	48.47	31.49	34.08	78.52	74.87	70.63	65.94	83.61	80.42
	69 m.p.h.	71.33	69.31	73.38	72.76	62.34	56.47	94.01	91.90	89.68	87.25	96.80	94.80
	74 m.p.h.	90.50	90.57	90.94	91.37	88.61	87.62	98.83	98.62	97.42	97.01	99.74	99.63
	79 m.p.h.	97.29	96.94	97.29	97.12	97.31	96.24	99.69	99.69	99.21	99.20	100.0	100.0
	84 m.p.h.	99.59	99.47	99.49	99.40	100.0	99.72	99.92	100.0	99.80	100.0	100.0	100.0
	89 m.p.h.	99.85	99.85	99.82	99.81	100.0	100.0	99.92	100.0	99.80	100.0	100.0	100.0

ADDENDUM

TRAFFIC SPEEDS UNDER VOLUNTARY MAXIMUM SPEED LIMIT

During the fall of 1973, the fuel crisis in the nation resulted in national and state efforts to improve efficiency in the use of gasoline by decreasing maximum speeds. In Indiana because of current state laws only a voluntary reduction of speed limits was possible until the State Legislature, which met in January-February 1974, could pass additional legislation. As a result, during the last months of 1973 and Janaury-February 1974 legal maximum speeds on Indiana highways remained as before but motorists were urged by national and state authorities to travel at a maximum speed of 55 mph.

To evaluate the effect in maximum free-flowing speeds of this voluntary effort, a speed study was made in December 1973 and January-February 1974 of the free-flowing speeds at three of the annual speed stations. This Addendum reports the findings of that study.

All observations were made of free-flowing vehicles on level, tangent sections of rural highways during daylight and under favorable conditons. Three stations were studied from the same locations on selected Federal and State highways as used for many years. The three stations were classified as two-lane, four-lane and interstate highways. The site locations were as follows:

A. Interstate Highways

Station 2: I-65 1.0 mile west of Junction SR 334

B. Four-Lane Highways

Station 8: U.S. 52 1.0 mile west of Klondike

C. Two-Lane Highways

Station: 12: S.R. 25 0.7 miles west of Americus

Results of Analysis

Analysis of the speeds showed the overall average speed for passenger cars was 61.4 miles per hour. The overall average speed for heavy trucks was 57.3 miles per hour. This was 3.8 mph less for passenger cars and 1.5 mph less for trucks than the results of the speed study conducted in June and August 1973.

The average speed for each classification of vehicles on each type of highway for this study was as follows: (June-August 73 comparable speeds are shown in parenthesis):

	Interstate	Four-Lane	Two-Lane
Passenger Cars:			
Indiana	63.75 (69.25)	60.11 (63.98)	59.60 (62.14)
Non-Indiana	66.77 (70.14)	57.78 (63.70)	60.40 (61.38)
85 Percentile (all)	71.30 (74.78)	67.66 (70.85)	66.16 (68.72)
Trucks:			
Less than 5000 lbs.	58.86 (64.05)	58.12 (60.78)	57.18 (58.66)
5000 lbs or more	59.47 (61.56)	55.09 (57.77)	54.80 (56.42)

The percent of vehicles exceeding the proposed speed limit (55 mph) for each classification of vehicles and each type of highway was as follows:

	Interstate	Four-Lane	Two-Lane
Passenger Cars:			
Indiana	86.08	72.35	71.53
Non-Indiana	94.64	65.22	93.33
All passenger cars	87.71	71.67	72.64
Trucks:			
Less than 5000 lbs.	63.64	64.71	56.41
5000 lbs or more	74.53	53.12	46.38

The percent of vehicles traveling more than 5 mph above the proposed speed limit for each case was as follows:

	Interstate	Four-Lane	Two-Lane
Passenger Cars:			
Indiana	67.93	45.62	40.93
Non-Indiana	87.50	30.43	33.33
All passenger cars	71.67	44.17	40.54
Trucks:			
Less than 5000 lbs.	50.00	38.24	23.08
5000 lbs or more	38.68	18.75	10.14

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